

REMARKS

Reconsideration of the application in view of the above amendments and the following remarks is requested. Claims 19-20, 27-28, and 31-42 are in this application. Claims 1-18, 21-26, and 29-30 have been cancelled. Claims 31-42 have been added to alternately recite the present invention.

The Examiner rejected claim 30 under 35 U.S.C. §112, second paragraph, as being indefinite. The Examiner also rejected claims 1, 6-8, and 17-30 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art FIG. 1 in view of Donovan et al. (U.S. Patent No. 3,792,470) and further in view of Bell (U.S. Patent No. 5,930,340). The Examiner additionally rejected claims 2-5 and 9-11 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art FIG. 1 in view of Donovan et al. and Bell and further in view of DeCramer et al. (U.S. Patent Publication No. 2002/0041676). The Examiner further rejected claims 12-16 under 35 U.S.C. §103(a) as being unpatentable over applicant's admitted prior art FIG. 1 in view of Donovan et al. and Bell and further in view of Dhara et al. (U.S. Patent No. 6,879,582).

Claims 1-3, 6-16, 21-24, and 29-30 have been cancelled in favor of new claims 31-38. In addition, claims 17-18 and 25-26 have been cancelled in favor of new claims 39-42. Thus, for the reasons set forth below, applicant respectfully traverses this rejection as applied to new claims 31-42 and existing claims 19-20 and 27-28.

Claim 31 recites:

“a power supply circuit connected to receive an AC voltage, convert the AC voltage into a first DC power supply voltage, and place the first DC power supply voltage on a power supply node; and

“a battery status circuit connected to simultaneously place a plurality of tones on the power supply node that represent a status of a battery.”

Claim 39 recites similar limitations.

If power supply circuit 114 shown in applicant's prior art FIG. 1 is read to be the power supply circuit required by claim 31, then there is nothing in applicant's prior art FIG. 1 that can be read to be the battery status circuit required by claim 31. Controller 126 shown in applicant's prior art FIG. 1 can not be read to be battery status circuit required by claim 31. This is because, although controller 126 detects the status of the battery and outputs information that represents the status of the battery, controller 126 does not place a plurality of tones that represent the status of the battery on the same node that carries the power supply voltage. Instead, applicant's prior art teaches that controller 126 outputs the battery status information to a control cable 130 which has a number of wires, such as seven. (See page 4, lines 4-22 of applicant's specification.) As a result, claims 31 and 39 are patentable over applicant's prior art FIG. 1.

With respect to the Donovan reference, this reference teaches an alarm system that includes N alarm sensors, such as alarm sensor 11 as shown in FIG. 1 of Donovan. When alarm sensor 11 indicates a set condition, an alarm detect circuit, such as alarm detect circuit 31, outputs a signal that alternates between a first frequency and a second frequency. When alarm sensor 11 indicates a tripped condition, alarm detect circuit 31 outputs a signal of only the first frequency.

Donovan also teaches that if the status of each alarm sensor 11-14 is represented by a pair of different frequencies, a frequency from each frequency pair can be simultaneously output to single transmission line 21 shown in FIG. 1 of Donovan. Donovan teaches that the advantage of simultaneously outputting the frequencies associated with the alarm sensors is that this approach reduces the number of expensive lines that are needed to transmit all of the status signals.

The Examiner appears to have argued that, in view of Donovan, one skilled in the art would have been motivated to modify applicant's prior art FIG. 1 to use a pair of frequencies to represent a pair of battery states so that, for example, seven different frequency pairs can be used to represent seven different battery status conditions.

The Examiner also appears to have argued that one skilled in the art would have been motivated to use a single-wire control cable in lieu of the seven-wire control cable 130 shown in applicant's prior art FIG. 1 to simultaneously output the, for example, seven frequencies associated with the seven battery status conditions so that the number of expensive lines that are needed to transmit all of the status signals can be reduced to one.

However, even if one skilled in the art were be motivated to use, for example, seven different frequency pairs and a single-wire control cable in lieu of the seven-wire control cable 130 shown in applicant's prior art FIG. 1 to simultaneously output the battery status conditions, the Donovan reference fails to teach that the different frequencies can be simultaneously output to the power supply line as required by the claims.

In response to this omission, the Examiner appears to argue that the Donovan reference teaches or suggests that transmission line 21 shown in FIG. 1 of Donovan can be eliminated, and that the different alarm frequencies can be simultaneously

output to a power supply line in lieu of transmission line 21 to eliminate transmission line 21 and reduce the number of expensive lines that are needed to transmit all of the status signals.

Thus, the Examiner appears to argue that if one skilled in the art were motivated to use a single-wire control cable in lieu of the seven-wire control cable 130 shown in applicant's prior art FIG. 1 to simultaneously output the, for example, seven frequencies associated with the battery status conditions, then one skilled in the art would be further motivated to eliminate the control cable in view of Donovan.

Applicant, however, has been unable to find any discussion in Donovan that in any way teaches or suggests that a group of different alarm frequencies can be simultaneously output to a power supply line in lieu of transmission line 21 to eliminate transmission line 21 so that the number of expensive lines that are needed to transmit all of the alarm status signals can be reduced. Further, applicant has been unable to find any discussion in Donovan that in any way teaches or suggests that a group of different alarm frequencies can be simultaneously output to any wire, regardless of the signals and/or voltages that are already carried by the wire.

Thus, since there is nothing in the cited text of Donovan that teaches or suggests eliminating transmission line 21 in favor of the power supply line, there is nothing in Donovan that would suggest to one skilled in the art that control cable 130 shown in applicant's prior art FIG. 1 be eliminated in favor of the power supply line. As a result, claims 31 and 39 are patentable over applicant's prior art FIG. 1 in view of Donovan.

With respect to the Bell reference, the cited section of this reference teaches that data signals can be transmitted over the same copper wiring that is used to carry voice signals by using, for example, xDSL technologies that transmit the voice and data signals in different frequency bands.

However, even though Bell, like Donovan, teaches that different signal frequencies can be simultaneously output to a single wire, there is nothing in the cited text of the Bell reference that teaches or suggests outputting data signals to the DC power supply lines, such as the second pair of wires 110B shown in applicant's prior art FIG. 1. In addition, there is nothing in the cited text of the Bell reference that teaches or suggests that data signals can be output to any wire, regardless of the signals and/or voltages that are already carried by the wire.

Thus, since there is nothing in the cited text of Bell that teaches or suggests outputting data signals to the power supply lines, there is nothing in Bell that would suggest to one skilled in the art that control cable 130 shown in applicant's prior art FIG. 1 be eliminated in favor of the power supply line. As a result, claims 31 and 39 are patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell.

With respect to the Kocis (U.S. Patent No. 5,854,828), this reference is directed to software on a customer computer that converts a file on the computer into a series of tones that are output to the speakers of the customer computer. The sound produced by the speakers is directed into a telephone handset in the same manner that a person speaks into a telephone handset. A computer on the other end of the telephone line converts the sound on the telephone line into a file that matches the file on the customer's computer. (See column 3, lines 4-21 of Kocis.) Thus, other than the source of the sound, Kocis teaches that a telephone line is used in a conventional manner. As a result, claims 31 and 39 are patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell and Kocis.

With respect to Klein et al. (U.S. Patent No. 3,803,594), this reference discusses frequency division multiplexing whereby alarm data provided by different "[a]larm sources is coded by tones of different frequencies, and the coded tones,

representing the data from all of the alarm sources, [are] transmitted simultaneously to the central monitor over a common transmission line.” (See column 1, lines 40-50 of Klein.)

However, as with Donovan, even though Klein teaches that different coded tones are transmitted simultaneously to the central monitor over a common transmission line, there is nothing in the cited text of Klein that teaches or suggests eliminating the common transmission line in favor of the power supply line, and therefore nothing in Klein that would suggest to one skilled in the art that control cable 130 shown in applicant’s prior art FIG. 1 be eliminated in favor of the power supply line. In addition, there is nothing in the cited text of the Klein reference that teaches or suggests that the different tones can be simultaneously output to any wire, regardless of the signals and/or voltages that are carried by the wire. As a result, claims 31 and 39 are patentable over applicant’s prior art FIG. 1 in view of Donovan and further in view of Bell and Klein.

Therefore, since none of the references (applicant’s prior art FIG. 1, Donovan, Bell, Kocis, and Klein) taken alone or in combination teach or suggest simultaneously outputting or receiving a group of different tones to or from the power supply lines, claims 31 and 39 are patentable over applicant’s prior art FIG. 1 in view of Donovan and further in view of Bell. Claims 31 and 39 are also patentable over applicant’s prior art FIG. 1 in view of Donovan and further in view of Bell and DeCramer and Dhara for the same reasons that claims 31 and 39 are patentable over applicant’s prior art FIG. 1 in view of Donovan and further in view of Bell.

In addition, since claims 32-38 depend either directly or indirectly from claim 31, claims 32-38 are patentable over applicant’s prior art FIG. 1 in view of Donovan and further in view of Bell and DeCramer and Dhara for the same reasons that claim 31 is patentable over applicant’s prior art FIG. 1 in view of Donovan and further in

view of Bell. Further, since claims 40-42 depend either directly or indirectly from claim 39, claims 40-42 are patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell and DeCramer and Dhara for the same reasons that claim 39 is patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell.

With respect to claim 19, this claim recites:

“placing a DC voltage on a pair of wires; and  
“simultaneously superimposing a plurality of tones on the DC voltage on the pair of wires, each tone representing a different battery status condition of a same battery.”

Claim 27 recites similar limitations.

As noted above, none of the references (applicant's prior art FIG. 1, Donovan, Bell, Kocis, and Klein) teach simultaneously outputting a group of different tones to the DC power supply lines. In addition, although some of the references teach that a group of different tones can be simultaneously output to a single wire, none of the references teach or suggest that the group of different tones can be simultaneously output to any single wire, regardless of the signals and/or voltages that are already carried by the wire.

Thus, since none of the references (applicant's prior art FIG. 1, Donovan, Bell, Kocis, and Klein) teach or suggest simultaneously outputting a plurality of tones to the DC power supply lines, claims 19 and 27 are patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell. Claims 19 and 27 are also patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell and DeCramer and Dhara for the same reasons that claims 19 and 27 are patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell.

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In addition, since claims 20 and 28 depend directly from claims 19 and 27, respectively, claims 20 and 28 are patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell and DeCramer and Dhara for the same reasons that claims 19 and 27, respectively, are patentable over applicant's prior art FIG. 1 in view of Donovan and further in view of Bell.

Therefore, for the foregoing reasons, it is submitted that all of the claims are in a condition for allowance. Therefore, the Examiner's early re-examination and reconsideration are respectively requested.

Respectfully submitted,

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